

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

WAT + WCwet

Project/Site: Bridge 175 SR-1504 over Dunn Swamp City/County: Columbus Sampling Date: 9/23/14
 Applicant/Owner: NC DOT State: NC Sampling Point: WCwet
 Investigator(s): P. May & J. Sullivan Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): (none) Slope (%): —
 Subregion (LRR or MLRA): P-133A Lat: 34.3410 Long: -78.9731 Datum: NAD83
 Soil Map Unit Name: Muckalee sandy loam frequently flooded NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) ☐ Surface Water (A1) ☐ Aquatic Fauna (B13) ☐ High Water Table (A2) ☐ Marl Deposits (B15) (LRR U) ☒ Saturation (A3) ☐ Hydrogen Sulfide Odor (C1) ☐ Water Marks (B1) ☐ Oxidized Rhizospheres along Living Roots (C3) ☐ Sediment Deposits (B2) ☐ Presence of Reduced Iron (C4) ☐ Drift Deposits (B3) ☐ Recent Iron Reduction in Tilled Soils (C6) ☐ Algal Mat or Crust (B4) ☐ Thin Muck Surface (C7) ☐ Iron Deposits (B5) ☐ Other (Explain in Remarks) ☐ Inundation Visible on Aerial Imagery (B7) ☒ Water-Stained Leaves (B9)		Secondary Indicators (minimum of two required) ☐ Surface Soil Cracks (B6) ☐ Sparsely Vegetated Concave Surface (B8) ☐ Drainage Patterns (B10) ☐ Moss Trim Lines (B16) ☐ Dry-Season Water Table (C2) ☐ Crayfish Burrows (C8) ☐ Saturation Visible on Aerial Imagery (C9) ☒ Geomorphic Position (D2) ☐ Shallow Aquitard (D3) ☒ FAC-Neutral Test (D5) ☐ Sphagnum moss (D8) (LRR T, U)
Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): <u>—</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>—</u> Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>10</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No _____	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: W(1)

Tree Stratum (Plot size: <u>30</u>)				Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Liquidambar styraciflua</u>	<u>20</u>	<u>X</u>	<u>FAC</u>		
2.	<u>Acer rubrum</u>	<u>20</u>	<u>X</u>			
3.						
4.						
5.						
6.						
7.						
8.						
		<u>40</u> = Total Cover				
		50% of total cover: <u>20</u> 20% of total cover: <u>8</u>				
Sapling/Shrub Stratum (Plot size: <u>15</u>)				Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Ligustrum sinense</u>	<u>50</u>	<u>X</u>	<u>FAC</u>		
2.	<u>Liquidambar styraciflua</u>	<u>10</u>		<u>FAC</u>		
3.	<u>Acer rubrum</u>	<u>10</u>		<u>FAC</u>		
4.						
5.						
6.						
7.						
8.						
		<u>70</u> = Total Cover				
		50% of total cover: <u>35</u> 20% of total cover: <u>14</u>				
Herb Stratum (Plot size: <u>5</u>)				Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Woodwardia acerolata</u>	<u>10</u>	<u>X</u>	<u>OBL</u>		
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
		<u>10</u> = Total Cover				
		50% of total cover: <u>5</u> 20% of total cover: <u>2</u>				
Woody Vine Stratum (Plot size: <u>30</u>)				Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Vitis rotundifolia</u>	<u>10</u>	<u>X</u>	<u>FAC</u>		
2.						
3.						
4.						
5.						
		<u>10</u> = Total Cover				
		50% of total cover: <u>5</u> 20% of total cover: <u>2</u>				

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of: _____ Multiply by: _____

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column Totals: _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ 1 - Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

☐ 3 - Prevalence Index is ≤3.0¹

☐ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: W/ well

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 2/2	90	10YR 3/4	10	C	M	L	
3-10	10YR 3/1	90	10YR 3/4	10	C	M	L	
10-24	10YR 2/2	100					SCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ Organic Bodies (A6) (LRR P, T, U)
☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
☐ Muck Presence (A8) (LRR U)
☐ 1 cm Muck (A9) (LRR P, T)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Coast Prairie Redox (A16) (MLRA 150A)
☐ Sandy Mucky Mineral (S1) (LRR O, S)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Dark Surface (S7) (LRR P, S, T, U)

- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
☐ Thin Dark Surface (S9) (LRR S, T, U)
☐ Loamy Mucky Mineral (F1) (LRR O)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☒ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)
☐ Marl (F10) (LRR U)
☐ Depleted Ochric (F11) (MLRA 151)
☐ Iron-Manganese Masses (F12) (LRR O, P, T)
☐ Umbric Surface (F13) (LRR P, T, U)
☐ Delta Ochric (F17) (MLRA 151)
☐ Reduced Vertic (F18) (MLRA 150A, 150B)
☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- ☐ 1 cm Muck (A9) (LRR O)
☐ 2 cm Muck (A10) (LRR S)
☐ Reduced Vertic (F18) (outside MLRA 150A,B)
☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
☐ Anomalous Bright Loamy Soils (F20)
 (MLRA 153B)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

WAJWC

WETLAND RATING WORKSHEET Fourth Version

Project Name Bridge 175 SR-1504 over Dunn Swamp Nearest Road Princess Ann Rd.
 County Columbus Wetland area <0.1 acres Wetland width ~30 feet
 Name of evaluator P. May & J. Sullivan Date 9/23/14

Wetland location

- ☐ on pond or lake
☒ on perennial stream
☐ on intermittent stream
☐ within interstream divide
☐ other: _____

Adjacent land use

- (within 1/2 mile upstream, upslope, or radius)
☒ forested/natural vegetation 56 %
☒ agriculture, urban/suburban 50 %
☐ impervious surface _____ %

Soil series:

- ☐ predominantly organic - humus, muck, or peat
☒ predominantly mineral - non-sandy
☐ predominantly sandy

Dominant vegetation

- (1) Red maple
 (2) Sweet gum
 (3) Chinese privet

Hydraulic factors

- ☐ steep topography
☐ ditched or channelized
☐ total wetland width $\geq$ 100 feet

Flooding and wetness

- ☐ semipermanently to permanently flooded or inundated
☐ seasonally flooded or inundated
☒ intermittently flooded or temporary surface water
☐ no evidence of flooding or surface water

Wetland type (select one)*

- ☒ Bottomland hardwood forest
☐ Headwater forest
☐ Swamp forest
☐ Wet flat
☐ Pocosin
☐ Bog forest

- ☐ Pine savanna
☐ Freshwater marsh
☐ Bog/fen
☐ Ephemeral wetland
☐ Carolina bay
☒ Other: Disturbed roadside wetland

* The rating system cannot be applied to salt or brackish marshes or stream channels

R	Water storage	<u>1</u>	x 4.00 =	<u>4</u>
A	Bank/Shoreline stabilization	<u>0</u>	x 4.00 =	<u>0</u>
T	Pollutant removal	<u>3</u>	** x 5.00 =	<u>15</u>
I	Wildlife habitat	<u>1</u>	x 2.00 =	<u>2</u>
N	Aquatic life value	<u>2</u>	x 4.00 =	<u>8</u>
G	Recreation/Education	<u>0</u>	x 1.00 =	<u>0</u>

Wetland
rating

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** Add 1 point if in sensitive watershed and >10% nonpoint source disturbance within 1/2 mile upstream, upslope, or radius

WBwet

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: Bridge 175 SR-1504 over Dum Swamp City/County: Columbus Sampling Date: 9/23/14
Applicant/Owner: NC DOT State: NC Sampling Point: WBwet
Investigator(s): P. May & J. Sullivan Section, Township, Range: _____
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): 2 Slope (%): -
Subregion (LRR or MLRA): P-133A Lat: 34.3414 Long: -78.5730 Datum: NAD83
Soil Map Unit Name: Muckalee sandy loam frequently flooded NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)			
☐ Surface Water (A1)	☐ Aquatic Fauna (B13)	☐ Surface Soil Cracks (B6)	
☒ High Water Table (A2)	☐ Marl Deposits (B15) (LRR U)	☐ Sparsely Vegetated Concave Surface (B8)	
☒ Saturation (A3)	☐ Hydrogen Sulfide Odor (C1)	☐ Drainage Patterns (B10)	
☐ Water Marks (B1)	☐ Oxidized Rhizospheres along Living Roots (C3)	☐ Moss Trim Lines (B16)	
☐ Sediment Deposits (B2)	☐ Presence of Reduced Iron (C4)	☐ Dry-Season Water Table (C2)	
☐ Drift Deposits (B3)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Crayfish Burrows (C8)	
☐ Algal Mat or Crust (B4)	☐ Thin Muck Surface (C7)	☐ Saturation Visible on Aerial Imagery (C9)	
☐ Iron Deposits (B5)	☐ Other (Explain in Remarks)	☒ Geomorphic Position (D2)	
☐ Inundation Visible on Aerial Imagery (B7)		☐ Shallow Aquitard (D3)	
☒ Water-Stained Leaves (B9)		☒ FAC-Neutral Test (D5)	
		☐ Sphagnum moss (D8) (LRR T, U)	
Field Observations:			
Surface Water Present? Yes <u>X</u> No <u>X</u> Depth (inches): <u>1</u>		Wetland Hydrology Present? Yes <u>X</u> No _____	
Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>16</u>			
Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>9</u> (includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: W Buert

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Acer rubrum</u>	<u>50</u>	<u>X</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>9</u> (A) Total Number of Dominant Species Across All Strata: <u>9</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. <u>Liquidambar styraciflua</u>	<u>30</u>	<u>X</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>90</u> = Total Cover 50% of total cover: <u>40</u> 20% of total cover: <u>16</u>				
Sapling/Shrub Stratum (Plot size: <u>15</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Acer rubrum</u>	<u>20</u>	<u>X</u>	<u>FAC</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. <u>Liquidambar styraciflua</u>	<u>20</u>	<u>X</u>	<u>FAC</u>	
3. <u>Ligustrum sinense</u>	<u>20</u>	<u>X</u>	<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>60</u> = Total Cover 50% of total cover: <u>30</u> 20% of total cover: <u>12</u>				
Herb Stratum (Plot size: <u>5</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Woodwardia glacialis</u>	<u>50</u>	<u>X</u>	<u>OBL</u>	Hydrophytic Vegetation Indicators: ☐ 1 - Rapid Test for Hydrophytic Vegetation ☒ 2 - Dominance Test is >50% ☐ 3 - Prevalence Index is ≤3.0 ¹ ☐ Problematic Hydrophytic Vegetation ¹ (Explain)
2. <u>Saururus cernuus</u>	<u>20</u>	<u>X</u>	<u>OBL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
<u>70</u> = Total Cover 50% of total cover: <u>35</u> 20% of total cover: <u>14</u>				
Woody Vine Stratum (Plot size: <u>35</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Campsis radicans</u>	<u>20</u>	<u>X</u>	<u>FAC</u>	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
2. <u>Smilax rotundifolia</u>	<u>10</u>	<u>X</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
<u>30</u> = Total Cover 50% of total cover: <u>15</u> 20% of total cover: <u>6</u>				
Hydrophytic Vegetation Present? Yes <u>X</u> No _____				

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: Wfng1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-24	10YR 2/1	100					CL	
24-48	10YR 2/1	100					CL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
☐ Histosol (A1)	☐ Polyvalue Below Surface (S8) (LRR S, T, U)	☐ 1 cm Muck (A9) (LRR O)
☐ Histic Epipedon (A2)	☐ Thin Dark Surface (S9) (LRR S, T, U)	☐ 2 cm Muck (A10) (LRR S)
☐ Black Histic (A3)	☐ Loamy Mucky Mineral (F1) (LRR O)	☐ Reduced Vertic (F18) (outside MLRA 150A,B)
☐ Hydrogen Sulfide (A4)	☐ Loamy Gleyed Matrix (F2)	☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
☐ Stratified Layers (A5)	☐ Depleted Matrix (F3)	☐ Anomalous Bright Loamy Soils (F20)
☐ Organic Bodies (A6) (LRR P, T, U)	☐ Redox Dark Surface (F6)	(MLRA 153B)
☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)	☐ Depleted Dark Surface (F7)	☐ Red Parent Material (TF2)
☐ Muck Presence (A8) (LRR U)	☐ Redox Depressions (F8)	☐ Very Shallow Dark Surface (TF12)
☐ 1 cm Muck (A9) (LRR P, T)	☐ Marl (F10) (LRR U)	☐ Other (Explain in Remarks)
☐ Depleted Below Dark Surface (A11)	☐ Depleted Ochric (F11) (MLRA 151)	
☒ Thick Dark Surface (A12)	☐ Iron-Manganese Masses (F12) (LRR O, P, T)	
☐ Coast Prairie Redox (A16) (MLRA 150A)	☐ Umbric Surface (F13) (LRR P, T, U)	
☐ Sandy Mucky Mineral (S1) (LRR O, S)	☐ Delta Ochric (F17) (MLRA 151)	
☐ Sandy Gleyed Matrix (S4)	☐ Reduced Vertic (F18) (MLRA 150A, 150B)	
☐ Sandy Redox (S5)	☐ Piedmont Floodplain Soils (F19) (MLRA 149A)	
☐ Stripped Matrix (S6)	☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)	
☐ Dark Surface (S7) (LRR P, S, T, U)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <u>X</u> No _____
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Remarks: Dark surface continued to 48 inches. but was not able to be checked deeper. It is our professional opinion that the soil will be hydric below the dark surface & will meet indicator A-12

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

WA, WB, WC up

WB up

Project/Site: Bridge 175 SR-1504 over Dunn Swamp City/County: Columbus Sampling Date: 9/23/14
 Applicant/Owner: NCDOT State: NC Sampling Point: WB up
 Investigator(s): P. May & J. Sullivan Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): (none) Slope (%): _____
 Subregion (LRR or MLRA): P-133A Lat: 34.343 Long: -76.829 Datum: NAD83
 Soil Map Unit Name: Murkalee sandy loam frequently flooded NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)
☐ Surface Water (A1) ☐ High Water Table (A2) ☐ Saturation (A3) ☐ Water Marks (B1) ☐ Sediment Deposits (B2) ☐ Drift Deposits (B3) ☐ Algal Mat or Crust (B4) ☐ Iron Deposits (B5) ☐ Inundation Visible on Aerial Imagery (B7) ☐ Water-Stained Leaves (B9)	☐ Aquatic Fauna (B13) ☐ Marl Deposits (B15) (LRR U) ☐ Hydrogen Sulfide Odor (C1) ☐ Oxidized Rhizospheres along Living Roots (C3) ☐ Presence of Reduced Iron (C4) ☐ Recent Iron Reduction in Tilled Soils (C6) ☐ Thin Muck Surface (C7) ☐ Other (Explain in Remarks)	☐ Surface Soil Cracks (B6) ☐ Sparsely Vegetated Concave Surface (B8) ☐ Drainage Patterns (B10) ☐ Moss Trim Lines (B16) ☐ Dry-Season Water Table (C2) ☐ Crayfish Burrows (C8) ☐ Saturation Visible on Aerial Imagery (C9) ☐ Geomorphic Position (D2) ☐ Shallow Aquitard (D3) ☐ FAC-Neutral Test (D5) ☐ Sphagnum moss (D8) (LRR T, U)
Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes _____ No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: WBP

Tree Stratum (Plot size: <u>30</u>)		Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Acer rubrum</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>
2.	<u>Liquidambar styraciflua</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>
3.				
4.				
5.				
6.				
7.				
8.				

50% of total cover: 20 20% of total cover: 8
40 = Total Cover

Sapling/Shrub Stratum (Plot size: <u>15</u>)		Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Liquidambar styraciflua</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>
2.	<u>Ligustrum sinense</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>
3.	<u>Melia azedarach</u>	<u>5</u>		<u>UPL</u>
4.				
5.				
6.				
7.				
8.				

50% of total cover: 22.5 20% of total cover: 9
45 = Total Cover

Herb Stratum (Plot size: <u>5</u>)		Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Woodwardia arifolia</u>	<u>10</u>	<u>Y</u>	<u>OBL</u>
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				

50% of total cover: 5 20% of total cover: 2
10 = Total Cover

Woody Vine Stratum (Plot size: <u>30</u>)		Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Campsis radicans</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>
2.				
3.				
4.				
5.				

50% of total cover: 5 20% of total cover: 2
10 = Total Cover

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)
 Total Number of Dominant Species Across All Strata: 6 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____	(A) _____ (B) _____
Prevalence Index = B/A = _____	

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
☒ 2 - Dominance Test is >50%
☐ 3 - Prevalence Index is ≤3.0¹
☐ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present?

Yes X No _____

Remarks: (If observed, list morphological adaptations below).

SOIL

Sampling Point: WBup

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 2/2	100					L	
6-12+	10YR 2/1	100					L	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ Organic Bodies (A6) (LRR P, T, U)
☐ 5 cm Mucky Mineral (A7) (LRR P, T, U)
☐ Muck Presence (A8) (LRR U)
☐ 1 cm Muck (A9) (LRR P, T)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Coast Prairie Redox (A16) (MLRA 150A)
☐ Sandy Mucky Mineral (S1) (LRR O, S)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Dark Surface (S7) (LRR P, S, T, U)

- ☐ Polyvalue Below Surface (S8) (LRR S, T, U)
☐ Thin Dark Surface (S9) (LRR S, T, U)
☐ Loamy Mucky Mineral (F1) (LRR O)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)
☐ Marl (F10) (LRR U)
☐ Depleted Ochric (F11) (MLRA 151)
☐ Iron-Manganese Masses (F12) (LRR O, P, T)
☐ Umbric Surface (F13) (LRR P, T, U)
☐ Delta Ochric (F17) (MLRA 151)
☐ Reduced Vertic (F18) (MLRA 150A, 150B)
☐ Piedmont Floodplain Soils (F19) (MLRA 149A)
☐ Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils³:

- ☐ 1 cm Muck (A9) (LRR O)
☐ 2 cm Muck (A10) (LRR S)
☐ Reduced Vertic (F18) (outside MLRA 150A,B)
☐ Piedmont Floodplain Soils (F19) (LRR P, S, T)
☐ Anomalous Bright Loamy Soils (F20)
 (MLRA 153B)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

WB

WETLAND RATING WORKSHEET Fourth Version

Project Name Bridge 175 SR-54 over Dunn Swamp Nearest Road Princess Ann Rd
 County Columbus Wetland area ~0.25 acres Wetland width ~50 feet
 Name of evaluator P. May & J. Sullivan Date 9/23/14

Wetland location

☐ on pond or lake
☒ on perennial stream
☐ on intermittent stream
☐ within interstream divide
☐ other: _____

Adjacent land use

(within 1/2 mile upstream, upslope, or radius)

☒ forested/natural vegetation 50 %
☒ agriculture, urban/suburban 50 %
☐ impervious surface _____ %

Soil series:

☐ predominantly organic - humus, muck, or peat
☒ predominantly mineral - non-sandy
☐ predominantly sandy

Dominant vegetation

(1) Red maple
 (2) Sweetgum
 (3) Netted-chain fern

Hydraulic factors

☐ steep topography
☐ ditched or channelized
☐ total wetland width $\geq$ 100 feet

Flooding and wetness

☐ semipermanently to permanently flooded or inundated
☐ seasonally flooded or inundated
☒ intermittently flooded or temporary surface water
☐ no evidence of flooding or surface water

Wetland type (select one)*

☒ Bottomland hardwood forest
☐ Headwater forest
☐ Swamp forest
☐ Wet flat
☐ Pocosin
☐ Bog forest

☐ Pine savanna
☐ Freshwater marsh
☐ Bog/fen
☐ Ephemeral wetland
☐ Carolina bay
☐ Other: _____

* The rating system cannot be applied to salt or brackish marshes or stream channels

R	Water storage	<u>2</u>	x 4.00 =	<u>8</u>
A	Bank/Shoreline stabilization	<u>0</u>	x 4.00 =	<u>0</u>
T	Pollutant removal	<u>3</u>	** x 5.00 =	<u>15</u>
I	Wildlife habitat	<u>2</u>	x 2.00 =	<u>4</u>
N	Aquatic life value	<u>2</u>	x 4.00 =	<u>8</u>
G	Recreation/Education	<u>0</u>	x 1.00 =	<u>0</u>
** Add 1 point if in sensitive watershed and >10% nonpoint source disturbance within 1/2 mile upstream, upslope, or radius				

**Wetland
rating**

35